

THALES CUSTOMER COMMITMENT



Thales Communications, Inc. Becomes Thales Defense & Security, Inc.

As a result of recent acquisitions and intra-Thales mergers, our company has broadened its technology base and enhanced its product portfolio. To better reflect the focus, mission, and offerings of our expanded company, on October 1, we changed our name from Thales Communications, Inc. to Thales Defense & Security, Inc.

Historically, Thales Communications has been a recognized global leader providing advanced communications products for the military and first responders. Thales Defense & Security focuses on that core technology, plus more. We are a larger, stronger company with operational and market synergies that are enabling us to provide even better solutions to meet the needs of our customers.

We serve the defense, federal, and commercial markets with innovative solutions for the ground tactical, airborne and avionics, naval/maritime, public safety, and security domains. We do this through seven business areas:

- **Communication Systems:** Size, weight, and power-constrained, software-defined radio technologies
- **System Solutions:** Leveraging solutions from the technology-rich, global Thales organization to address U.S. requirements
- **Air Traffic Management:** Navigation, surveillance, and simulation solutions for the Department of Defense and commercial air traffic management
- **Thales Visionix** (subsidiary): Helmet mounted display and motion tracking technologies for the air and ground domains
- **Tampa Microwave*** (Joint Venture operating as a subsidiary): Manpackable, tactical SATCOM terminals for expeditionary operations
- **Thales e-Security*** (subsidiary): Data protection solutions
- **Advanced Acoustic Concepts*** (Joint Venture): Advanced sonar systems and other underwater system technologies

*These companies are affiliated companies under Thales Defense & Security management control, but their day-to-day operations are not merged with ours.

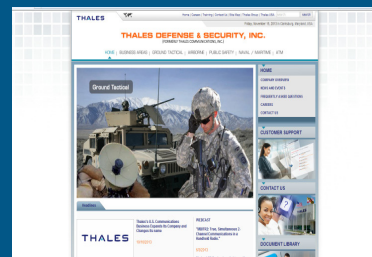
As you read through this newsletter, you will be introduced to some of our newer business areas.

Our headquarters, which includes our state-of-the-art manufacturing plant, remains in Clarksburg, Maryland. We now have additional facilities in Maryland, California, Florida, Illinois, Kansas, Massachusetts, New York, and Pennsylvania.

See page 17 for a visual depiction of our seven business areas and their respective product lines.

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**Have you visited our new
website?**

www.thalesdsi.com

A Holiday Message from Mike Sheehan, CEO and President, Thales Defense & Security



On behalf of everyone here at Thales Defense & Security, I want to offer our best wishes for a joyous holiday season and a happy and healthy new year. We appreciate the opportunity to work with you.

To the men, women, and families of our Nation's Armed Forces, we thank you for all you do. Your service is invaluable, your sacrifices are immeasurable, and your contributions are countless. We have our freedom to show for it and are forever in your debt.

Mike Sheehan

Air Traffic Management (ATM)

Headquartered in Overland Park, Kansas

For more than 70 years, Thales has been a major supplier of leading edge navigation and surveillance solutions for the U.S. Federal Aviation Administration (FAA) and U.S. Department of Defense (DoD). Today, our **navigation, surveillance, and simulation** solutions are working to help Air Navigation Service Providers, Airports and Airline Authorities, State Governments, and DoD/Armed Forces meet their needs for increased safety, capacity, and efficiency.



Thales supplies more than 99% of the Instrument Landing Systems in the U.S.

Navigation

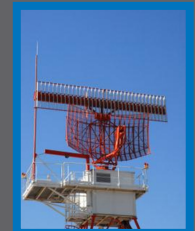
Navigation Aids (NAVAIDS) are ground based systems that provide electronic signals to airplanes that enable a pilot to navigate during flight. Thales is the world leader in ground-based conventional and satellite air navigation equipment. More than three quarters of the world market for NAVAIDS are captured by Thales. Thales has provided more than 7,000 NAVAIDS in 170 countries worldwide.



Over 300 land system simulators, 100 helicopter simulators and 200 aircraft simulators delivered to customers worldwide

Surveillance

These are ground-based systems that detect, calculate position, and identify aircraft. This information provides situational awareness to air traffic controllers, which is required for them to safely control and monitor aircraft during all phases of flight. Thales has more than 60 years of experience in the design and implementation of radars, providing a complete multi-sensor surveillance solution.



More than 600 radars, 1,900 ADS-B stations, 200 multilateration stations, and 20 ADS-C ATC centers around the world

Simulation

Thales also provides customer support and upgrades for computer programs and displays that facilitate pilot and warfighter training. We are serving military customers in the U.S. with simulation customer support and updates; providing technical, logistics, and upgrade support; and offering depot repair training of CRT projectors for all customers worldwide.



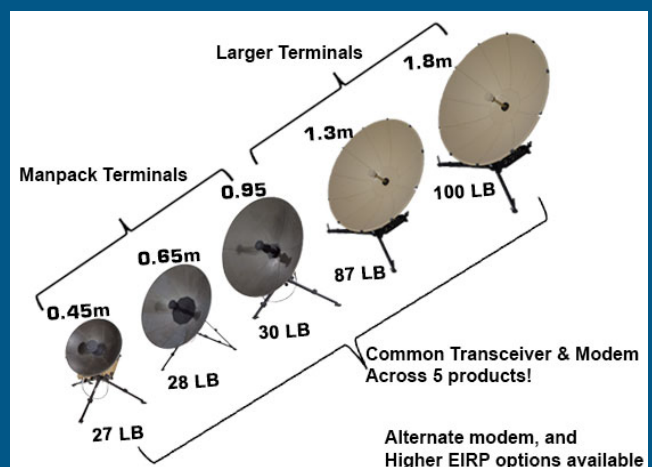
Headquartered in Tampa, Florida



Tampa Microwave provides the world's smallest, man-packable, tactical, SATCOM terminals for high-bandwidth, voice, and video battlefield communications. These terminals are specially designed for the dismounted soldier who will operate in hazardous territories and who may parachute jump and then carry the manpack in his ruck sack.

Key features include:

- The terminal's Night Vision Goggle compatible front panel display provides instructions to assist orientation of the antenna for satellite acquisition
- No tools are required to change the antenna and transceiver to the most suitable for the mission
- The terminal has an integrated modem as well as a GPS receiver
- Versatile range of power inputs, 85 to 265 V AC, 47 to 440 Hz, 10 to 36 V DC
- Purposely built for tactical environment, MIL-STD-810F tested, MIL-SPEC reliability
- Operational temp -20 to +55 degrees C

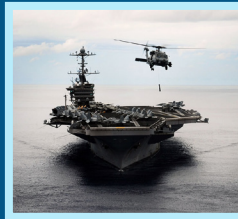


System Solutions

Headquartered in Clarksburg, Maryland

Thales Defense & Security serves as a gateway for technology, leveraging solutions from the global Thales organization to address U.S. requirements. The technology-rich Thales portfolio includes:

- LTE Communications for Secure Private Networks, Tactical Communications, and Public Safety: A mobile light core and handsets are provided for easily deployable 4G networks
- ISR Naval, Airborne, and Ground Solutions: Sensing systems and C2 for a range of platforms and mission applications
- Naval Communications and Combat Management Systems (CMS): Naval HF Communications has been part of our business since 2004. Thales offers the world's leading scalable, open architecture, CMS for Naval vessels
- Defense Systems Repair and Life Cycle Support: Field support and maintenance of Opto-Electronic Systems, like Optimized TopOwl helmet mounted displays, and U.S.-based repair and performance-based logistics, like ALFS (Airborne Low Frequency Sonars), are provided for Thales technologies sold in U.S. markets
- Electronic Warfare (EW): Naval EW/Electronic Support Measures (ESM); Airborne and Ground Tactical Signals Intelligence (SIGINT)/Electronic Intelligence (ELINT)/EW
- Training and Simulations Systems: Helicopter, fixed wing, and ground solutions
- Advanced Technology Programs: Remote sensing, tactical EW, novel communications, and big data analytics



Naval, Shipborne HF Communications Systems

The Naval Communications team at Thales Defense & Security continues to deliver state-of-the-art HF systems and sub-systems into key military and defense industry customers. In 2013, Thales was awarded a contract for the 6th & 7th Littoral Combat Ship (LCS-14 & 16) currently being built by the Austal/General Dynamics team in Mobile, AL. In addition to LCS, Thales has begun delivering HF equipment for the U.S. Navy's High Frequency Distribution Amplifier Group (HFDAG) program that was awarded in late 2012 by SPAWAR's PEO C4I office in San Diego, CA.

On the U.S. Coast Guard front, Thales continues to support the Fast Response Cutter or SENTINEL-Class Patrol Boat that is currently under construction along the Gulf Coast. These 157-foot cutters represent the future of the Coast Guard's patrol boat fleet designed for a multitude of missions including maritime interdiction and law enforcement.

Our team continues to support Foreign Military Sales (FMS) opportunities and ongoing bid support for the U.S. Navy's Naval Ship Transfer and Repair (N*STAR). The N*STAR program is a U.S. Navy program designed to support allied nations with ship transfer support and modernization.



Thales Visionix

Headquartered in Aurora, Illinois

SCORPION® Helmet Mounted Cueing System for Day and Night Operations

Thales Visionix develops industry-leading helmet mounted display (HMD) and motion tracking technologies. The company designs, develops, and delivers "game-changing" HMD, inertial tracking, and sensor fusion technology. Their solutions improve the way users operate in high-performance aerospace, defense, and industrial environments through the use of integrated situational awareness systems.

Cornerstone Products:

Scorpion® Helmet Mounted Cueing System

- World's only full-color HMD
- Night vision goggle interoperability
- Low cost of ownership
- Mission proven

InterSense IS-900 Motion Tracking System

- Military simulation and training system of choice
- Inertial/ultrasound hybrid solution
- Most precise motion tracking system in market
- "Standard" for high-performance applications

The Scorpion® Helmet Mounted Cueing System (HMCS) provides full-color, dynamic flight and mission data, projected directly and safely into the aircrew's line of sight via a large field-of-view, fully transparent, rugged, optical waveguide assembly.



Compatible with Night Vision
Goggles

This capability allows the user to remain head-up and eyes-out of the cockpit with greatly enhanced real-time Situational Awareness (SA). The added dimension of full-color symbology and video imagery dramatically increases the user's ability to rapidly interpret and correlate vital SA information.

The Scorpion HMCS has a battle proven pedigree and is in full service operation on U.S. Air Force A-10, F-16, and AC-130W aircraft. Scorpion provides ease of integration for both forward-fit and retrofit fixed and rotary wing applications.

The panel-mount Interface Control Unit (ICU) is the only Line Replaceable Unit that needs to be mounted in the cockpit. The ICU can accommodate a 16Gbyte removable data cartridge for post-flight analysis.

The system pictured below shows the HGU-55/P aircrew helmet. Scorpion can be integrated with other flight helmets as well.

Visual cockpit
reference points,
aka fiducial markers

Hybrid Optical-based Inertial Tracker [HObit]
sensor with full spherical field of regard. No
cockpit mapping required.



MBITR²

The future of handheld tactical communications

MBITR2, the next generation Multiband Inter/Intra Team Radio, builds on the legacy of the smallest, lightest, most power-efficient tactical handheld radio in use today. By leveraging technologies based on the leading narrowband AN/PRC-148 tactical handheld radio and the leading wideband AN/PRC-154 tactical handheld radio, the MBITR2 provides the dismounted warfighter with the ability to integrate into the wideband tactical IP and voice network via the Soldier Radio Waveform (SRW) wideband channel while simultaneously maintaining legacy reach-back via the narrowband channel.

- Simultaneous 2-channel (narrowband and wideband) operations
- Retains the existing AN/PRC-148 JEM Type-1 capabilities and waveforms
- Adds a wideband channel to the AN/PRC-148 to provide SRW networking, data, and video capability
- Supports fielded ancillaries
- Embedded GPS
- 2m and 20m immersible variants are available

The MBITR2 retains interoperability with existing fielded radios while addressing tomorrow's requirements for a next generation, wideband, networking handheld radio. A low-risk and cost-effective approach to fielding is provided through an upgrade path for the more than 200,000 AN/PRC-148s currently deployed. Further, the common look and feel of the MBITR2 minimizes training, provides for common logistics support, and retains compatibility with the existing installed base of ancillaries.

Preproduction units have already been fielded, and we have received extremely positive customer feedback resulting in significant production orders.



Leap-ahead technology:
2 radios in 1 form factor

Full Motion Video Mission Modules (FMV-MM)

Recognizing that users currently carry multiple radios to maintain access to legacy narrowband waveforms and wideband FMV downlinks from assets such as Unmanned Aerial Vehicles (UAVs), Thales Defense & Security has teamed with L-3 Communications Systems-West to offer an FMV-MM mission module design that combines multiple pieces of communications equipment into a smaller and lighter package. The mission module concept leverages the capabilities of an AN/PRC-148 JEM and L-3's field-proven Soldier ISR Receiver 2.5 Tactical ROVER. It combines them into a single device, thus reducing the size and weight burden on the warfighter.



JEM with antenna for L-band 1.625 to 1.85GHz, S-band 2.2 to 2.5GHz and C-band 4.4 to 4.94GHz. FMV-MM supports FM analog video in L, S, and C bands as well as digital waveforms.



GPS Sidemate Adapter

This accessory provides an embedded GPS receiver for use in combination with the AN/PRC-148 JEM handheld radios. If a military grade PLGR or DAGR is not available, the commercial grade GPS Sidemate Adapter, or GPS Dongle, is an alternative. The GPS Sidemate Adapter is an alternative to the MA6795, Remote Control Unit with GPS.



New Airborne Products



The Thales Multichannel Airborne Radio with SRW (MARS) is a low cost, minimal size, weight, and power (SWAP) solution for airborne platforms. It repackages two radio channels—one narrowband AN/PRC-148 JEM radio board set and one wideband AN/PRC-154A Rifleman Radio board set—into an airborne-qualified Air Transport Rack (ATR) enclosure to provide the smallest and lightest two-channel airborne radio on the market. The MARS is specifically targeted at airborne VHF/UHF/L-band communications and relay applications.

An alternative configuration, in the same half-ATR airborne case, is the Small Airborne Networked Radio [SANR] which combines a two-channel MBITR2, one narrowband channel and one wideband SRW channel, with an AN/PRC-154A Rifleman radio. This configuration provides one Type 1 channel, e.g., for SINCGARS, and two SRW channels.

We have also leveraged the core technology of the AN/PRC-154A Rifleman Radio to develop the SRW Tactical Airborne Relay (STAR) specifically for use on UAV platforms where SWAP is a major concern. The STAR is the lightest SRW payload to date providing airborne qualified SRW mesh network functionality and is fully interoperable with both Thales and General Dynamics AN/PRC-154A Rifleman Radios.

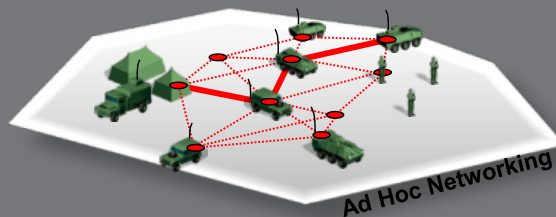


AN/PRC-154A RIFLEMAN RADIO

The Rifleman Radio is a lightweight, rugged, body worn radio that transmits voice and data simultaneously utilizing SRW. It brings secure inter-squad networked communications to the soldier at the tactical edge of the battlefield network, improving mission effectiveness. The radio allows self-forming, ad hoc, voice and data networks and enables any leader at the tactical level to track individual soldier Position Location Information (PLI), giving dismounted soldiers a much-needed situational awareness capability.

Networked Voice and Data Communications for Dismounted Soldiers

- Provides software-defined capability for upgradeability and interoperability
- Streamlines procurement, logistics, maintenance and training, reducing life cycle cost
- Provides low-cost JTRS networking
- Integrates embedded AES Type 2 encryption and GPS
- NSA certified for Secret And Below
- Non-CCI
- Minimizes soldier carry load



Vehicle Integrated Power Enhanced Rifleman (VIPER)

Thales Defense & Security, in a joint development with Ultralife, has developed the Vehicle Integrated Power Enhanced Rifleman, or VIPER, a ground vehicular adapter for the AN/PRC-154 and AN/PRC-154A Rifleman Radios. VIPER was specifically designed to address the U.S. Army requirement for an SRW Appliqué Radio System. This is a single channel, vehicle mounted radio that can be installed into the Single Channel Ground and Airborne Radio System (SINCGARS) vehicular mount.

The SRW Appliqué radios act as a conduit for voice and data between the dismounted warfighter, their unit, and higher headquarters.

VIPER is an ideal solution for any requirement for a low-cost, vehicle-based SRW radio.



- 20 Watt power amplifier extends range of SRW network for UHF and L-band operations
- Multiple interfaces for USB, Ethernet, PLGR and DAGR GPS, and vehicle intercom systems
- Successful evaluation at the Army Expeditionary Warrior Experiment (AEWE Spiral H)

Do you have MBITR batteries that need charging? How about JEM or Rifleman batteries, or other manufacturers' batteries?

The Modular Universal Battery Charger (MUBC) can help.

It can simultaneously charge eight batteries—a combination of AN/PRC-148, AN/PRC-152 and AN/PRC-154 batteries—as well as BB-2590 and conformal batteries. It can even charge smart phone batteries.

The MUBC has a built-in battery tester and analyzer providing battery health state-of-charge and identifies batteries that have less than 80% capacity. Power to the MUBC can be provided from a vehicle, from an AC power supply or generator, from a solar panel, or from a BB-2590 battery. The MUBC can charge batteries outdoors, even in heavy rain.

MUBCs have been successfully evaluated during Army Expeditionary Warfare Experiments (AEWEs) and Network Integration Evaluations (NIEs) at Fort Gordon, Georgia and Fort Bliss, Texas.




AN/PRC-154	
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Performance Parameters	
Available Capacity	1.5Ah
Max Capacity	5.5Ah
State of Charge	27%
Estimated Time to Complete	4.4h
Cycle Count	19
Battery Information	
Serial No.	136
Manufactured	22-Apr-2010
Rated Capacity	5.8Ah/63Wh
Runtime Information	
Estim. Runtime	2.38h
Stndby/Tx/Rx	90/05/05
Radio Type	
% Rated Capacity	95%



Current Tactical Firmware for the AN/PRC-148 Family of Radios and Associated PC Programmers

Please keep the firmware on your radios up-to-date. Visit Technical Resources at www.thalesdsi.com for latest firmware.

Tactical Radios	Type 1 AN/PRC-148(V)3(C) and (V)4(C) JTRS Enhanced MBITR (JEM) PRC6999	Type 1 AN/PRC-148(V)1(C) and (V)2(C) MBITR PRC6991	Non-Type 1 PRC6809
Current Maritime / 20m Submersible Receiver/ Transmitter "Brick" Part Number	4101658-511 or -514	4101104-501	4101422-504
Current Urban / 2m Submersible Receiver/ Transmitter "Brick" Part Number	4101660-507 or -510	4101195-501	4101349-502
Current Radio Firmware	Version 08.01.11.0373	Version 2.43	Version 1.20
JEM PC Configuration Toolkit (PCCT) Part Number and Version	MA6941N Version 08.01.04.005		
MBITR PC Programmer Part Number and Version		MA6941F Version 1.13	MA6941L Version 1.07
JEM PCCT User's Manual and Revision	84358 Revision M		
MBITR PC Programmer User's Manual and Revision		84333 Revision L	84262 Revision F
Radio Operator's Manual and Revision	84357 Revision L	84329 Revision K	84345 Revision F
Radio Operator's Manual Integrated Waveform (IW) Addendum	84428 Revision C		
Quick Reference Guide (QRG) Number and Revision	3400905 Revision H	3400577 Revision J	3400738 Revision C
JEM IW QRG Number and Revision	3400905-3 Revision C		
JEM IW Booklet Number and Revision	84430 Revision C		
	The JEM firmware version is briefly displayed at the end of the power-on Built-In-Test (BIT) cycle. The PCCT firmware version is displayed from the Help menu.	The MBITR firmware version is briefly displayed at the end of the power-on Built-In-Test cycle. The PC Programmer firmware version is displayed from the Help menu.	The PRC6809 firmware version is briefly displayed at the end of the power-on Built-In-Test cycle. The PC Programmer firmware version is displayed from the Help menu.
	PC Configuration Toolkit Cable (PCCT), part number 1100592-501, is required to upgrade JEM firmware via a USB port on a PC running Windows XP, Vista or Windows 7 or 8	"PC Programmer Cable, part number 3500393-501, is required to upgrade firmware of MBITRs and PRC6809s via an RS-232 serial port on a PC running Windows XP, Vista or Windows 7 or 8	

Current Tactical Firmware for RF Power Amplifiers for the AN/PRC-148 Family of Radios



MA6943 Vehicle Adapter [VA] Part Number, Part of AN/VRC-111 Vehicle Adapter Amplifier	4101524-501
VA Firmware Version and Revision	Version 1.11 Revision H
Vehicle Adapter Exciter [VAE] Part Number	4101849-501
VAE Firmware Version and Revision	Version 1.05 Revision F
50W Power Amplifier [PA] Part Number	1600674-x multiple variants
PA Firmware Version and Revision	Version 02.01.00 Revision D
MA7135 Low Profile Vehicle Adapter [LPVA]	4102214-502
LPVA Firmware Version and Revision	Version 3.02 Revision E
MA7138 AN/VRC-113 Cradle Vehicle Adapter [CVA]	4102340-501 PA & 4102350-501 Cradle
CVA Firmware Version and Revision	Version 3.02 Revision E

Current Public Safety Firmware for the Liberty, Thales 25, and Associated PC Programmers

Public Safety Radios	Liberty, Multiband LMR	Thales 25 Project 25 VHF Handheld
Receiver/Transmitter "brick" part number	4102023-502 Intrinsic Safe	4101256-xxx can be -501, -503 or -505
Firmware Version and Revision	Version 06.22.11.0027 Revision K	Version 8.3 for -503 and up Version 5.13 for -501
PC Programmer Part Number and Revision	MA6941U Version 06.20.04.0010 Revision E	MA6941C Version 5.0 Revision H
PC Programmer User's Manual and Revision	84404 Revision F	84330 Revision H
Radio Operator's Manual and Revision	84382 Revision F	84326 Revision G
T25 Quick Reference Guide / Liberty Field Operations Guide	3401448 Revision E	3400539-1 Revision D
	The Liberty's firmware is displayed after the radio is powered on displaying the Statue of Liberty screen.	The T25's firmware is briefly displayed at the end of the power-on Built-In-Test cycle.
	Programming Cable Kit, part number 3100965-501, is required to upgrade Liberty firmware via a USB port on a PC running Windows XP, Vista or Windows 7 or 8	Programming Cable, part number 85302, is required to upgrade firmware of Thales 25 via aRS-232 serial port on a PC running Windows XP

Current Firmware for the HF Naval / Maritime Products

Model Number	Equipment	Part Number	Firmware Version
TMR 1090	1 kW Linear Power Amplifier	796010-000-001	3.14
TMR 1096	125 W Linear Power Amplifier	796012-000-001	2.32
TMR 3302	Dual ALE Modem	799075-001-002	1.68
TMR 4090	1 kW Antenna Coupler	798012-000-001	1.00
TMR 4095	125 W Whip Antenna Coupler	798011-000-003	2.01
TMR 4096	125 W NVIS Antenna Coupler	798013-000-001	3.05
TMR 6490	Remote Control Unit	799070-000-001	7.10
TMR 6491	Remote Control Unit w/ External Power Supply	799072-000-001	7.10
TMR 8092	HF Transceiver	794054-000-001	2.74
PA8105	500 W Power Amplifier	634797-00	0032
PA8109	1 kW Power Amplifier	608690-00	0032
ACU50	Antenna Coupler	602229-00	1.0 & 1.6
ACU51	1 kW Antenna Coupler	602229-01	1.0 & 1.6
MCU6402	Antenna Multi-coupler	604325-02	Not applicable
MCU6403	Antenna Multi-coupler	604325-00	Not applicable
MCU6412	Antenna Multi-coupler	604324-01	2.08



The Customer Support Department 24/7 Call Support Center

Customers who call the Customer Service 1-800 number are now given three options to properly route their requests: Technical Assistance, Repairs/Product Support and Sales/Aftermarket Support. Incoming calls are routed to the appropriate Customer Service Specialist to ensure all inquiries are addressed as quickly as possible.

To contact Customer Service, please call us at:

1-800-914-0303

For International Customers:

+1-240-864-7643

customer.service@thalesdsi.com



Option 1.

TECHNICALASSISTANCE and
general inquiries
technical.support@thalesdsi.com

Option 2.

REPAIRS, Return Material
Authorization (RMAs) and other
product support assistance
product.support@thalesdsi.com

Option 3.

SALES for spares and ancillary items,
request quotes and make purchases,
website/shopping cart assistance
aftermarket.support@thalesdsi.com

Customer Satisfaction Telephone Survey

Thales Defense & Security would like thank those customers who have participated in recent phone surveys administered on our behalf by IntelliQ Research. Your responses provide valuable feedback in our efforts to maintain close user ties and to ensure our resources are focused on the critical areas of product reliability, enhanced product features, and other support services. This feedback is analyzed on an ongoing basis and reviewed by management to ensure we continue to provide world-class tactical products and support capabilities required for you to execute your missions safely and effectively.

We realize that lives depend on what we do. We thank you for your service and appreciate your feedback.

FREQUENTLY ASKED QUESTIONS

AN/PRC-148 GENERAL TOPICS

Q: Where on the website can I find the programming software and firmware for my radios?

A: You must register on our website (www.thalesdsi.com) via the Customer Support Customer Sign-in link. Please ensure you select the appropriate area of interest: either "Tactical Communications" for the AN/PRC-148 family, "Public Safety" for the Thales 25 handheld radio, "Liberty Radio," or "Naval" for our range of maritime HF products.

Technical resource access approval is not automatic, each request is internally reviewed. After registering, an acknowledgement email is sent. After approval, another email is sent. Users can then sign-in on the website, navigate to "Technical Resources," and download Operator's Manuals, training presentations, radio firmware, and other useful resources. Note that users of the tactical AN/PRC-148 radio family must register with a valid .mil email address.

Q: Do I need a Material Safety Data Sheet (MSDS) to ship AN/PRC-148 batteries?

A: No. In 2008, the criteria was based on the Equivalent Lithium Content (ELC) in grams. Since January 1, 2009, the Class 9 criteria is based on the Watt hour (Wh) rating of the battery.

The Wh rating is calculated by multiplying the voltage of each cell by the Ampere hour rating of each cell and then multiplying that by the number of cells in the battery. For our 4.8 Ah Lithium-Ion rechargeable battery, part number 1600515-7, there are six cells each with a maximum voltage of 4.2 V and Ampere hour rating of 2.4 Ah. Therefore, the Watt hour rating is $4.2 \times 2.4 \times 6 = 61$ Wh. This is less than the IATA Class 9 Hazardous Material limit of 100 Wh.

For our 5.8 Ah battery, part number 1600686-2, there are six cells each with a maximum voltage of 4.2 V and Ampere hour rating of 2.9 Ah. Therefore, the Watt hour rating is $4.2 \times 2.9 \times 6 = 73$ Wh. This is also less than the IATA Class 9 Hazardous Material limit of 100 Wh.

Therefore, from a transportation point of view, an MSDS is not required.

Our batteries have been tested to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3

Q: When is the next operator training class at the Thales facility in Clarksburg, MD?

A: For the next AN/PRC-148 JEM train-the-trainer class in Clarksburg, contact aftermarket.support@thalesdsi.com or call 1-800-914-0303 and chose Option 3.

Q: The data plate on my radio is messed up, and I cannot read the serial number. How can I obtain the radio's internal electronic serial number?

A: The radio type shows after the power-on built-in test as well as the firmware version. AN/PRC-148(V)1 and (V)2 are original MBITRs with a serial RS-232 interface to a PC, (V)3 through (V)6 are JEMs with a USB interface to a PC.

To access an MBITR's internal serial number, you need the latest MBITR PC Programmer (version 1.13) loaded on the PC and a PC Programmer Cable, PN 3500393-501, NSN 5995-01-487-1139, (see picture below.) The PC Programmer application can be downloaded by registered users from the Technical Resources area of our web site.



Ensure the MBITR's side connector is enabled. A box symbol should be displayed in the upper-right corner of the radio's default display. If the box symbol is not displayed, hold the radio's "ALT" key and press the "MODE" key. Press the "ENT" key on "GLOBAL" and press "ENT" on "SIDE/MIC/LVL" Then change "SIDE DISABLE" to "SIDE ENABLE" and check the box symbol is now displayed.

Connect the MBITR to the PC, and open the PC Programmer application. Select the appropriate PC COM port from the "Options" drop-down menu. From the "Tools" drop-down menu, download the enabler database. This is a list of all fielded MBITR serial numbers and enabled radio features. On the "Tools" drop-down menu, select "Get Radio Serial Number." Alongside the serial number is a list of enabled features, for example, SINGGARS.

JEMs that have firmware version 7.0 or higher have a menu to view the internal serial number. Hold the "ALT" key and press the "MODE" key, then "MAINTENANCE" and then "VERSIONS."

To access a JEM's serial number with firmware version lower than 7.0, you need the PC Configuration Toolkit (PCCT) Version 05.01 or higher, loaded on the PC and a JEM USB programming cable, PN 1100592-501, NSN 5995-01-565-7851 (see picture below.)



Connect the JEM to the PC and ensure the side connector is enabled. Open the PCCT application, enter the password, and put the radio into "PC Toolkit Session Receive Ready" mode. From the "Tools" drop-down menu, download the enabler database. This is a list of all fielded JEM serial numbers and enabled radio features. On the "Tools" drop-down menu, select "Show Radio's Enabled Options." The enabled features are displayed as well as the radio's serial number.

Q: Can I convert my MBITRs into JEMs by doing a firmware upgrade?

A: No. Although MBITRs and JEMs are almost identical in appearance and operator menu structure, they are two very different hardware configurations;

JEMs have more capability than MBITRs, such as more features. JEMs have a USB port for programming frequency plans into the radio. MBITRs have an RS-232 serial port.

However, there is an MBITR to JEM Upgrade Program, wherein you turn in MBITRs to Thales and receive a new JEM at a discounted price.

The hardware of the new JEM will be Integrated Waveform capable (IW) but IW is an optional feature at an additional price. Other features, such as Over-the-Air-Cloning (OTAC), APCO Project 25 with AES, MELP vocoder for ANDVT operations, and SINCGARS FH2 are also options.

For an MBITR to JEM upgrade quote please contact aftermarket.support@thalesdsi.com or call 1-800-914-0303 and chose Option 3.

Q: Will I lose any functionality by doing a firmware upgrade?

A: No. Firmware upgrades will not take away any functionality. Firmware upgrades provide operational improvements or additional capability.

Q: What does an invalid xml error mean?

A: On a PC with Windows 7, this is the "Regional and Language" tab in the Control Panel. Check the format is "English (United States)."

Q: Does Thales sell the MT-6352/VRC SINCGARS Mounting Base?

A: No. The NSN is 5973-01-304-2050.

Q: What does an UNLCK alarm mean?

A: This means the radio's internal circuitry needs to be readjusted. The radio needs to be returned to Thales using the Return Material Authorization (RMA) process or to another approved AN/PRC-148 repair facility. See Page 12 for Product Support contact information.

Q: How can my unit conduct intermediate level maintenance that requires opening the AN/PRC-148 radios?

A: Thales can provide a quotation for the necessary test equipment, spare parts and tools, as well as training. Contact Aftermarket Support at 1-800-914-0303, Option 3, or email aftermarket.support@thalesdsi.com.

Q: Can I clone/transfer my settings from one radio to another?

A: AN/PRC-148(V)1s and (V)2s are MBITRs. AN/PRC-148(V)3s through (V)6s are JEMs.

Yes, every MBITR and JEM radio is capable of wired cloning using Cloning Cable part number 3500610-501 (NSN 5995-01-558-3583), but you can only clone an MBITR to an MBITR or a JEM to a JEM.

OTAC is an optional feature for JEMs. However, you can only clone from one OTAC-enabled JEM to other OTAC-enabled JEMs.

AN/PRC-148 JEM TOPICS

Q: “NO PJC” is flashing on the display of my radios. What does this mean, and how do I fix it?

A: The Private Joseki Component (PJC) key only applies to the AN/PRC-148(V)3, (V)4, (V)5, and (V)6 JEM radios, not the AN/PRC-148(V)1 and (V)2 MBITRs. The PJC key is the crypto master key to enable the JEM's crypto chip to operate correctly. You are not able to perform any encrypted operations, or even load crypto into the radio, without the PJC key loaded. Every JEM is loaded with the PJC key before it is shipped from our facility. Without the PJC key loaded only plain text or retransmission operations are possible.

A JEM has a hold-up battery (HUB) inside of the radio to maintain the PJC key. The HUB cannot be replaced. It is kept charged with a trickle charge from the main radio battery

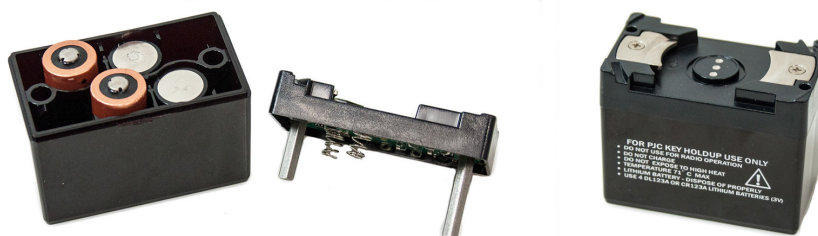
attached to the radio. If a JEM is not used for 60 days or more without a battery attached then the HUB will become depleted. If this happens, a battery needs to be attached, to the radio in order to begin the trickle charge, and the PJC key needs to be re-loaded into the radio.

It will take four hours of trickle charge before the HUB is charged enough to retain the PJC key and other encryption keys during a battery change. It takes 48 hours of a trickle charge to fully charge the HUB, at which point the 60-day time period starts over.

Below is a chart that shows the applicable PJC key short titles based on the JEM type, as shown on the radio's data plate, and firmware version. A COMSEC Manager can contact the CONAUTH to obtain these keys if needed.

PJC Short Title	Radio Configuration	Software Release Version					
		3	4	5	6	7	8
USKAE B9500 880091 Edition 4	AN/PRC-148[V]3[C], [V]4[C]	Yes	Yes	Yes	Yes		
	AN/PRC-148A[V]3[C]						
USKAE B1001 Edition 1	AN/PRC-148[V]3[C], [V]4[C]					Yes	Yes
	AN/PRC-148A[V]3[C]						
USKAE B10054 880091 Edition 1	AN/PRC-148 [V]5[C]		Yes	Yes	Yes	Yes	Yes
	AN/PRC-148 [V]6[C]						

Thales now offers a PJC Retention Battery for long-term radio storage, or transportation delays. This battery trickle charges the HUB to ensure the PJC key is retained for one year, not just 60 days. PJC Retention Battery, part number 3101156-502, with no DL123A (Surefire) batteries.



Please see the PJC User Notice on the Customer Sign-in page of our web site. This explains the problem in more detail and gives guidance on obtaining the appropriate PJC key.

Q: How do I get Integrated Waveform (IW) SATCOM enabled on my JEMs?

A: To enable IW on AN/PRC-148(V)4 JEMs that have R/T part number of 4101660-507: the IW upgrade feature must first be purchased. Then the radio needs to be temporarily returned to Thales so that the radio's hardware can be changed to R/T

part number 4101660-510. The firmware will be upgraded to the latest version and the IW feature enabled.

For AN/PRC-148(V)4 JEMs that already have a part number of 4101660-510: purchase the IW feature, upgrade the radios' firmware to the latest version and enable the IW feature on the radio using the JEM PC Configuration Toolkit.

For AN/PRC-148(V)3 Maritime JEMs: The same process as the AN/PRC-148(V)4 R/T part number 4101660-507, but Maritime R/T part numbers 4101658-511 or -514 are already

IW-capable. R/T part numbers 4101658-506 and lower are not IW capable and will require the hardware upgrade once the IW feature is purchased.

All AN/PRC-148(V)5 and (V)6 JEMs already have IW enabled. IW capability started with firmware version 7.0.

The MBITR to JEM Upgrade Program allows the turn-in of MBITRs to receive new JEMs at a discounted price. The hardware of these JEMs will be IW capable; however, it will be necessary to purchase the IW feature.

Q: What does the error “JEM Radio Serial Number 0 Not Eligible for the Update Package Selected” mean?

A: This means the Software Maintenance feature, shown as “SW MAINT,” is not enabled in the radio. This feature must be enabled before you can upgrade JEM firmware beyond version 3.0.

Ensure the latest version of the JEM PC Configuration Toolkit is installed on the computer. Registered users can download this from our website. To proceed, the PC must have the latest JEM enabler database files. If the PC is connected to the Internet, these can be downloaded using the JEM PC Configuration Toolkit by selecting the “Tools” drop-down menu and selecting “Load New Enabler Database.” If you have no Internet connection, contact Customer Service, 1-800-914-0303, option 1, or customer.service@thalesdsi.com to email the two encrypted .txt files that make up the enabler database.

Once you have the updated enabler database files, you can drag or copy them to the C:/Program Files (or Program Files x86)/Thales Communications/JEM PC Toolkit folder and overwrite the existing files. This updates the enabler database.

Connect the JEM to the computer using the JEM USB programming cable. Ensure the radio's side connector is enabled and the password has been entered to put the radio into PC Toolkit Session Receive Ready mode.

With the radio connected, on the PC Configuration Toolkit select the “Tools” drop-down menu and select “Update Radio with Factory Enabled Options.” A pop-up will show on the PC Configuration Toolkit. Wait about 15 seconds, then click “Update.” A notification is displayed on the PC Configuration Toolkit, and the radio will reboot when this process is complete.

Once the radio reboots, you can verify the “SW MAINT” feature is enabled by holding “ALT,” pressing “MODE,” then press “ENT” on “MAINTENANCE,” then press “ENT” on “OPTIONS.” It may be necessary to use the down arrow to see the “SW MAINT” feature.

With the “SW MAINT” feature enabled, the radio firmware upgrade can be completed.

Q: What is wrong in this picture?

A: The SINCGARS blade antenna is folded-up, this significantly reduces the communication range/distance. For best SINCGARS band range/distance, the antenna should be fully extended.

Typical line-of-sight range of a PRC-148, transmitting at 5W, is 5km, that is 1km/W.



Upcoming Trade Shows

2014 Trade Shows	Dates	Location
Special Operations Low Intensity Conflict (SO/LIC)	February 10-12	Washington DC
International Wireless Communications Expo (IWCE)	March 26-27	Las Vegas, NV
Sea-Air-Space (Navy League)	April 7-9	National Harbor, MD
Army Aviation Association of America (Quad A)	May 4-7	Nashville, TN
Special Operations Forces Industry Conference (SOFIC)	May 20-22	Tampa, FL

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ISR Solutions
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Defense Systems Repair/Life Cycle Support
Electronic Warfare
Training & Simulation Systems
Advanced Technology



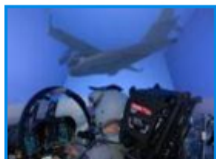
Air Traffic Management

Navigation
Surveillance
Simulation



Thales Visionix

Helmet Mounted Displays
Motion Tracking Components



Tampa Microwave

SATCOM Terminals
RF Components



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Sonar Systems



Thales e-Security

Data Protection Solutions



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Our headquarters campus in Clarksburg, Maryland, houses our state-of-the-art manufacturing facilities and business development groups as well as our 24/7 Customer Support Department. We also provide in-theater support to U.S. and Coalition Forces in Afghanistan (email afghanistan.support@thalesdsi.com for more information).



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